

AMENDMENTS TO THE CLAIMS

1-24. (Canceled)

25. (New) A door opening and closing system in an electric oven, the system comprising:

at least one latch provided at one side of a door;

a door interlocking structure including:

a switch; and

a rotary lever being rotated by the at least one latch at a first side of the rotary lever when the door is moved from an open position to a closed position, the rotary lever having a first engagement portion and a second engagement portion at a second side of the rotary lever opposite the first side, the first engagement portion and second engagement portion coming in contact in seriatim with the switch unit as the rotary lever is rotated to indicate when the door is in the open position, an intermediate position between the open position and the closed position, and the closed position; and

a door locking structure including:

a motor having a rotary shaft;

a rotary unit; and

a latch guide,

wherein the rotary shaft is rotated by the motor when the door interlocking structure indicates that the door is closed, the rotary unit is rotated by the rotary shaft of the motor, and the latch guide cooperates with the rotary unit to change a rotation motion of the rotary unit into a straight-line motion of the latch guide such that the latch guide contacts the at least one latch to prevent opening of the door.

26. (New) The system according to claim 25, wherein the rotary shaft has a noncircular cross-section and is inserted into the rotary unit.

27. (New) The system according to claim 25, further comprising:
 - at least one contact protrusion provided at a predetermined position on the rotary unit; and
 - at least one micro-switch provided at a corresponding position of the contact protrusion to indicate a motion position of the latch guide.
28. (New) The system according to claim 25, further comprising:
 - a guide shaft extending from one side of the latch guide; and
 - a guide shaft hole provided at the rotary unit to receive the guide shaft therein.
29. (New) The system according to claim 25, wherein the motor, the rotary unit and the latch guide are provided in a layered arrangement.
30. (New) The system according to claim 25, wherein the latch guide includes a latch hooking unit bent and angled with respect to a length direction of the latch guide at an end of the latch guide opposite the rotary unit.
31. (New) The system according to claim 25, wherein the latch guide includes a latch guide slot to receive a protrusion to guide the straight-line motion of the latch guide.
32. (New) The system according to claim 25, wherein the rotary lever includes a rotary guide protrusion extending from the rotary lever toward the at least one latch such that the at least one latch pushes the rotary guide protrusion when the at least one latch rotates the rotary lever.
33. (New) The system according to claim 25, wherein the first engagement portion and second engagement portion are arranged in a stepped relationship.

34. (New) The system according to claim 33, wherein the switch unit includes two switch contacts arranged to be contacted in seriatim by the first and second engagement portions.

35. (New) The system according to claim 25, wherein the switch unit includes two switch contacts arranged to be contacted in seriatim by the first and second engagement portions.

36. (New) The system according to claim 25, wherein the switch unit includes two layered micro-switches.

37. (New) The system according to claim 25, wherein the door interlocking structure includes an elastic spring to assist the rotation of the rotary lever in a direction opposite to an insertion direction of the at least one latch.

38. (New) A door opening and closing system in an electric oven, the system comprising:

at least one latch provided at one side of a door;

a first door opening and closing structure including:

 a motor having a rotary shaft;

 a rotary unit; and

 a latch guide,

 wherein the rotary shaft is rotated by the motor in a first direction

when the at least one latch is inserted, and is rotated by the motor in a second direction opposite the first direction when the at least one latch is removed, the rotary unit being rotated by the rotary shaft of the motor to rotate through a predetermined angle, and the latch guide having one end connected to the rotary unit and the other end being latchable by the at least one latch when the at least one latch is inserted such that the latch guide contacts the at least one latch to prevent an opening of the door; and

a second door opening and closing structure provided at a position adjacent to the at least one latch to indicate an opening and closing state of the door by contact of the at least one latch with the second door opening and closing structure.

39. (New) The system according to claim 38, further comprising:

at least one protrusion provided at a circumference of the rotary unit; and

at least one micro-switch provided at a corresponding position of the protrusion to sense a rotation degree of the rotary unit by using a displacement of the protrusion.

40. (New) The system according to claim 38, wherein the latch guide contacts the at least one latch after the second door opening and closing structure indicates that the door is in the closed state.

41. (New) The system according to claim 38, wherein the latch guide contacts the at least one latch when the electric oven performs a pyrolysis operation.

42. (New) The system according to claim 38, wherein the rotary unit is connected to the latch guide by a guide shaft, and the guide shaft and the rotary shaft of the motor are arranged to extend substantially parallel.

43. (New) A door opening and closing system in an electric oven, the system comprising:

at least one protrusion protruded from one surface of a door;

a first door opening and closing structure; and

a second door opening and closing structure including:

a switch unit; and

a rotary lever being rotated by the at least one protrusion at a first side of the rotary lever when the door is moved from an open position to a closed position, the rotary lever having a first engagement portion and a second engagement portion at a second side of the rotary lever opposite the first side, the first engagement portion and second engagement portion coming in contact in seriatim with the switch unit as the rotary lever is rotated to indicate when the door is in the open position, an intermediate position between the open position and the closed position, and the closed position; and

the first door opening and closing structure maintaining the door in a locking state after the second door opening and closing structure indicates that the door is in the closed position.

44. (New) The system according to claim 43, further comprising a rotary guide protrusion provided at the first side of the rotary lever to be extended toward the protrusion.

45. (New) The system according to claim 43, wherein the first engagement portion and second engagement portion are arranged in a stepped relationship.

46. (New) The system according to claim 43, wherein the switch unit includes two switch contacts arranged to be contacted in seriatim by the first and second engagement portions.

47. (New) The system according to claim 43, wherein the switch unit includes a monitor switch contact and a primary switch contact.

48. (New) The system according to claim 47, wherein, when the monitor switch contact and primary switch contact are engaged, the second door opening and closing structure indicates that the door is in the closed position.

49. (New) The system according to claim 43, wherein the switch unit includes a plurality of micro-switches.

50. (New) The system according to claim 49, wherein, when each micro-switch of the plurality of micro-switches is turned on, the second door opening and closing structure indicates that the door is in the closed position.

51. (New) The system according to claim 43, wherein the second door opening and closing structure includes an elastic spring to assist the rotation of the rotary lever in a direction opposite to an insertion direction of the at least one protrusion.